WE CLAIM

1. A method of operating a transmitter, said method comprising:

determining a first unequal weighting of a plurality of stream weights; and

transmitting a plurality of transmission signals as a function of a plurality of data streams and the first unequal weighting of the plurality of streams weights.

2. The method of claim 1, further comprising:

determining a second unequal weighting of the plurality of stream weights subsequent to the determination of the first unequal weighting for the plurality of stream weights; and

transmitting the plurality of transmission signals as a function of the plurality of data streams and the second unequal weighting of the plurality of streams weights.

3. A method of operating a transmitter, said method comprising:

determining a mean square error for each stream weight of a plurality of stream weights;

determining a first stream weight of the plurality of stream weights having the largest mean square error;

increasing a power of the first stream weight; and

decreasing a power of each stream weight of the plurality of stream weights excluding the first stream weight.

4. The method of claim 3, further comprising:

establishing a set of statistics corresponding to a channel vector, wherein determining a mean square error for each stream weight of the plurality of stream weights is according to:

$$\mathrm{MSE}_\ell = \sum_{k=0}^{N-1} \frac{1}{1+\alpha_\ell^2 \mathbf{H}_\ell^H(k)\mathbf{Q}_\ell^{-1}(k)\mathbf{H}_\ell(k)}$$

5. The method of claim 3, further comprising:

establishing an increment,

wherein an increasing of the power of the first stream weight is by a summation of the power and the increment.

6. The method of claim 5, wherein establishing the increment is according to:

$$s = \frac{1}{4\sqrt{n}}$$

7. The method of claim 3, wherein decreasing a power of each stream weight of the plurality of stream weights excluding the first stream weight is according to:

$$\sum_{\ell=1}^{n} \alpha_\ell^2 = 1$$

8. The method of claim 3, further comprising

repeating limitations when all of the mean square errors of the plurality of stream weights are unequal.

9. The method of claim 3, further comprising:

determining an equal weighting of the plurality of stream weights prior to limitations according to:

$$\alpha_i = 1/\sqrt{n}$$

10. A method of operating a transmitter, said method comprising:

initializing a first stream weight; and

increasing the first stream weight by a product of a power variable and an increment.

11. The method of claim 10, wherein initializing the first stream weight is according to:

$$\alpha_n = \frac{1}{2\sqrt{n}}$$

12. The method of claim 10, further comprising:

determining a weighting of a plurality of stream weights excluding the first stream weight according to:

$$\alpha_\ell^2 = \frac{1}{\mathrm{MSE}_n} \sum_{k=0}^{N-1} \frac{1}{\mathbf{H}_\ell^H(k)\mathbf{Q}_\ell^{-1}(k)\mathbf{H}_\ell(k)}$$

13. The method of claim 12, further comprising:

dividing the increment by a factor subsequent to increasing the first stream weight by a product of the power variable and the increment; and

repeating limitations when the increment is greater than a resolution value *E*.

14. The method of claim 10, further comprising:

determining the power variable according to:

$$c = sign(1 - \sum_{\ell=1}^{n} \alpha_{\ell}^{2})$$

15. A transmitter, comprising:

a module operable to determine a first unequal weighting of a plurality of stream weights; and

means for transmitting a plurality of transmission signals as a function of a plurality of data streams and the first unequal weighting of the plurality of streams weights.

16. The transmitter of claim 15, wherein:

said module is operable to determine a second unequal weighting of the plurality of stream weights subsequent to the determination of the first unequal weighting for the plurality of stream weights; and

the plurality of transmission signals are transmitted as a function of the plurality of data streams and the second unequal weighting of the plurality of streams weights.

17. The transmitter of claim 15, wherein, to determine the first unequal weighting of the plurality of stream weights, said module is further operable to:

determine a mean square error for each stream weight of a plurality of stream weights;

determine a first stream weight of the plurality of stream weights having the largest mean square error;

increase a power of the first stream weight; and

decrease a power of each stream weight of the plurality of stream weights excluding the first stream weight.

18. The transmitter of claim 15, wherein, to determine the first unequal weighting of the plurality of stream weights, said module is further operable to:

establish a set of statistics corresponding to a channel vector.

19. The transmitter of claim 18, wherein a determination of the mean square error for each stream weight of the plurality of stream weights is according to:

$$\mathrm{MSE}_{\ell} = \sum_{k=0}^{N-1} \frac{1}{1 + \alpha_{\ell}^{2} \mathbf{H}_{\ell}^{H}(k) \mathbf{Q}_{\ell}^{-1}(k) \mathbf{H}_{\ell}(k)}$$

20. The transmitter of claim 15, wherein, to determine the first unequal weighting of the plurality of stream weights, said module is further operable to:

establish an increment.

21. The transmitter of claim 20, wherein an increase in the power of the first stream weight is by a summation of the power and the increment.

22. The transmitter of claim 20, wherein an establishment of the increment is according to:

$$s = \frac{1}{4\sqrt{n}}$$

23. The transmitter of claim 15, wherein a decrease of a power of each stream weight of the plurality of stream weights excluding the first stream weight is according to:

$$\sum_{\ell=1}^{n} \alpha_{\ell}^{2} = 1$$

24. The transmitter of claim 15, wherein, to determine the second unequal weighting of the plurality of stream weights, said module is further operable to:

repeat limitations when all of the mean square errors of the plurality of stream weights are unequal.

25. The transmitter of claim 15, wherein, to determine the first unequal weighting of the plurality of stream weights, said module is further operable to:

determining an equal weighting of the plurality of stream weights prior to limitations according to:

$$\alpha_{i} = 1/\sqrt{n}$$

26. The transmitter of claim 15, wherein, to determine a first unequal weighting of the plurality of stream weights, said module is further operable to:

initialize a first stream weight; and

increase the first stream weight by a product of a power variable and an increment.

27. The transmitter of claim 26, wherein an initialization of the first stream weight is according to:

$$\alpha_n = \frac{1}{2\sqrt{n}}$$

28. The transmitter of claim 26, wherein, to determine the first unequal weighting of the plurality of stream weights, said module is further operable to:

determine a weighting of a plurality of stream weights excluding the first stream weight according to:

$$\alpha_\ell^2 = \frac{1}{\mathrm{MSE}_n} \sum_{k=0}^{N-1} \frac{1}{\mathbf{H}_\ell^H(k)\mathbf{Q}_\ell^{-1}(k)\mathbf{H}_\ell(k)}$$

29. The transmitter of claim 28, wherein, to determine the second unequal weighting of the plurality of stream weights, said module is further operable to:

divide the increment by a factor subsequent to increasing the first stream weight by a product of the power variable and the increment; and

repeat limitations when the increment is greater than a resolution value.

30. The transmitter of claim 26, wherein, to determine the first unequal weighting of the plurality of stream weights, said module is further operable to:

determining the power variable according to:

$$c = sign(1 - \sum_{\ell=1}^{n} \alpha_{\ell}^{2})$$